FLEXIBLE DISPLAY DEVICE AND DATA DISPLAYING METHOD THEREOF

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from and the benefit of Korean Patent Application No. 10-2008-0123738, filed on Dec. 8, 2008, which is hereby incorporated by reference for all purposes as if fully set forth herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] Exemplary embodiments of the present invention relate to a flexible display technology, and in particular, to providing data display of a flexible display device associated with various input systems utilizing a flexible sensor and a touch sensor system.

[0004] 2. Description of the Background

[0005] Portable terminals are widely used because they can be carried easily. Conventional portable terminals may have a reproducing function, such as an MP3 player function and an image collecting function (e.g., a digital camera). Portable terminals can also support mobile games and/or arcade games.

[0006] Portable terminals may execute the functions through displays. Conventional displays of portable terminals may be small and spatial arrangements in the portable terminals may be limited due to the available size. Accordingly, portable terminals have started to employ a display that can be flexible. Such displays may be referred to as flexible displays. Conventional devices with flexible displays may be referred to as flexible display devices. The flexible display devices may receive signals by a simple signal input, and display data stored in the storage unit on the flexible display. A variety of applications may be required to use the flexible display feature.

SUMMARY OF THE INVENTION

[0007] Exemplary embodiments of the present invention provide a flexible display device capable of displaying various types of display modes in response to input signals that can be defined based on a flexible display feature, and various data displaying flexible display device.

[0008] Additional features of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention.

[0009] Exemplary embodiments of the present invention disclose a device including a touch sensor to detect a touch event. The device also includes a flexible sensor to detect a bend event. The device includes a storage unit to store a function table. The function table includes a is command to define function of the device according to the touch event and the bend event. The device further includes a controller to reproduce, by referring to the function table, contents stored in the storage unit, according to the touch event and the bend event. The device includes a display unit to display the reproduced contents.

[0010] Exemplary embodiments of the present invention also disclose a method for displaying data for a flexible display device. The method includes detecting a touch event. The method also includes reproducing and displaying contents on a device according to the detected touch event. The method includes detecting a bend event corresponding to bending of the device. The method further includes loading, in response to the bend event, a function table comprising commands that define functions associated with the touch event and the bend event. And the method includes reproducing the contents according to the commands provided by the function table.

[0011] It is to be understood that both the foregoing general description and the s following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate exemplary embodiments of the invention, and together with the description serve to explain the principles of the invention.

[0013] FIG. **1** is a schematic block diagram of a flexible display device according to is exemplary embodiments of the invention.

[0014] FIG. **2** is detailed view illustrating the controller of FIG. **1**, according to exemplary embodiments of the invention.

[0015] FIG. **3**, FIG. **4**, FIG. **5**, and FIG. **6** are diagrams of a flexible display device for supporting various data displaying modes associated with operating a flexible display device, according to exemplary embodiments of the invention.

[0016] FIG. **7**A, FIG. **7**B, FIG. **7**C, FIG. **8**A, FIG. **8**B, FIG. **9**, FIG. **10**A, FIG. **10**B, FIG. **10**C, and FIG. **10**D are diagrams of a flexible display device for supporting various data displaying modes associated with operating a flexible display device that supports a page turning function, according to exemplary embodiments of the invention.

[0017] FIG. **11** is a view illustrating a flexible display device according to exemplary embodiments of the invention.

[0018] FIG. **12**A and FIG. **12**B are diagrams of a flexible display device capable of s supporting enlargement and reduction functions, according to exemplary embodiments of the invention.

[0019] FIG. **13** is a flow chart that describing a method for displaying data in a flexible display device, according to exemplary embodiments of the present invention.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

[0020] The invention is described more fully hereinafter with reference to the accompanying drawings, in which exemplary embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the exemplary embodiments set forth herein. Rather, these exemplary embodiments is are provided so that this disclosure is thorough, and will fully convey the scope of the invention to those skilled in the art. In the drawings, the size and relative sizes of layers and regions may be exaggerated for clarity. Like reference numerals in the drawings denote like elements.

[0021] Hereinafter, exemplary embodiments of the present invention are described in detail with reference to the accompanying drawings.